IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	)	
Hector Cotal et at.	)	GAU: 1753
Ser. No. 10/603,703	)	Examiner:
Filed: June 25, 2003	)	Anthony D. Fick
For: SOLAR CELL WITH AN ELECTRICALLY	)	
INSULATING LAYER UNDER THE BUSBAR	)	

REPLY BRIEF

MAIL STOP APPEAL BRIEF-PATENTS
Commissioner for Patents
P. O. Box 1450
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ARGUMENTS

The U.S. Supreme Court set forth the standard governing patentability in Graham v. John Deere, 383 US 1, 148 USPQ 459. This standard was reaffirmed recently in KSR International C. v. Teleflex Inc., U.S. 2007, 127 S.Ct. 1727, 82 USPQ2d 1385. The court stated

> Throughout this Court's engagement with the question of obviousness, our cases have set forth an expansive and flexible approach inconsistent with the way the Court of Appeals applied its TSM test here. To be sure, Graham recognized the need for "uniformity and definiteness." 383 U.S, at 18. Yet the principles laid down in Graham reaffirmed the "functional approach" of Hotchkiss, 11 How. 248. See 383 U.S., at 12. To this end, Graham set forth a broad inquiry and invited courts, where appropriate, to look at any secondary considerations that would prove instructive. 82 USPQ2d at 1395.

The standards of Graham are set forth as follows:

> …., the § 103 condition, which is but one of three conditions, each of which must be satisfied, lends itself to several basic factual inquiries. Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in

> the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. 148 USPQ 467.

The Court further set forth in that opinion the dangers of hindsight

> And further, that the long-felt need in the industry for a device such as Scoggin's together with its wide commercial success supports its patentability. These legal inferences or subtests do focus attention on economic and motivational rather than technical issues and are, therefore, more susceptible to judicial treatment than are the highly technical facts often present in patent litigation. See Learned Han in Reiner v. I Leon Co., 285 F.2d 501, 504, 128 USPQ 25-27-29, cert. den. 366 U.S. 929, 129 USPQ 502 (1960). See also Comment, Subtests of "Nonobviousness." 112 Pa. L.Rev. 1169 (June 1964). Such inquiries may lend a helping hand to the judiciary which, as Mr. Justice Frankfurter observed, is most ill-fitted to discharge the technological duties cast upon it by patent legislation Marconi Wireless Co. v. United States, 320 US 1, 60. 57 USPQ 471, 496 (1943). They may also server to "guard against slipping into hindsight." Monroe Auto Equipment Co. v. Heckethorn Mfg. & Supply Co., 332 F. 2d 406, 412, 141 USPQ 549, 555 (1964), cert denied 379 U.S. 888, 143 USPQ 465, and to resist the temptation to read into the prior art teachings of the invention in issue. Id at 474.

The inquiry for which Appellant seeks the Board's review is based on these principles.

While all of claims 1-4, 7-12 and 14-23 remain under appeal, appellant will limit arguments in this REPLY to independent claims 1, 12 and 18 to conserve the Board's resources and focus argument upon what Appellant believes are fatal flaws in the Examiner's rejection. The Appellant's position with regard to the dependent claims is set forth in detail in Appellant's Appeal Brief, while the Examiner's position is fairly set out in the Examiner's Answer. These claims are representative of the further differences between the Appellant's and the Examiner's position. Furthermore, if the independent claims are found to be non-obvious, the dependent claims which include additional limitations on these independent claims, should also be non-obvious.

CLAIM 1

The Examiner's position with regard to claim 1 is based on Takeda et al. (U.S. 6,291,761) and Mowles (U.S.P.G. Pub 2002/0062858). The Examiner

relies on the embodiment of Takeda et al. in Figures 3A, 3B and 3C. This Figure is reproduced below for the convenience of the Board.

FIG. 3A

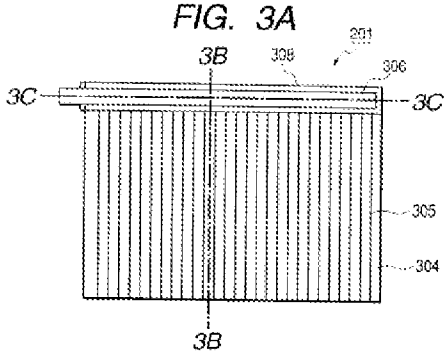


FIG. 3B

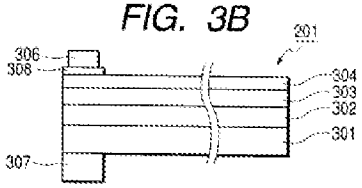
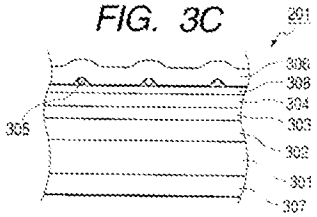


FIG. 3C

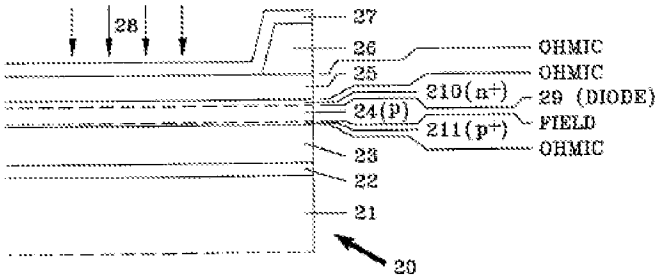


The Examiner notes that the photovoltaic energy source 303, identified in Takeda as a semiconductor photoactive layer includes a frontside array of metallic grid lines 305, identified in Takeda as carbon coated copper wire collector electrode and a busbar structure in electrical continuity with the frontside array 305, the busbar structure comprising an insulating layer 308, a polyimide tape having a thickness of 200 microns, and a metallic busbar layer, 306, which overlies the insulating layer 308 and is in electrical continuity with the frontside array of metallic gridlines.

To highlight the differences between the prior art and the claimed invention, Appellants have pointed out to the Examiner that claim 1 requires an electrical insulator layer overlying and contacting the front face of the photovoltaic energy source, wherein the electrical insulator layer is an oxide or a

nitride having a thickness of from about 0.3 to about 2 micrometers. The polyimide film (and not the oxide required by claim 1) is not a high temperature material. Furthermore, the polyimide film is thick, and therefore subject to the failures noted in Appellant's specification. Takeda provides no teaching or suggestion to decrease the thickness of the insulating layer to within Appellant's claimed range, nor would there be since the film of Takeda, not being used in a concentrator solar cell, would not be subject to the high temperatures of Appellant's invention, which is used in a concentrator solar cell.

To overcome these deficiencies, the Examiner relies on Mowles, and specifically paragraphs [0049]-[0052] of Mowles. These paragraphs refer to Figure 2A of Mowles, which is reproduced below.



In Mowles, the insulating layer 22 is used to electrically isolate the device from the substrate if the substrate is metal. Thus, in Mowles, the insulating layer is between the substrate 21 and the device. More specifically, insulating layer 22 is between the substrate 21 and the back conductor 23.

While the Examiner's position has consistently been that it would be obvious to substitute the insulating layer 22 of Mowles for the insulting layer 308 in Takeda, thereby yielding Appellant's invention, Appellant fails to understand the motivation for the modification of Takeda et al. the obviousness of this invention. Appellant has argued the Examiner's use of hindsight to construct the obviousness rejection. That is, once provided with knowledge of Appellant's

claims, it is possible to find all the elements of the claims in the prior art and assemble them to provide Appellant's invention. Appellant's argued position has thus been that the Examiner has set forth no objective basis for combining the teachings of the references in the manner used by this rejection, and has merely selected the helpful portions from each reference while ignoring the unhelpful portions. An objective basis is one set forth in the art or which can be established by a declaration, not one that can be developed in light of the present disclosure. In this case, Takada teaches an insulating layer 308 made of polyimide-based insulating tape having a thickness of 200 micrometers (col. 18, lines 8-10). Mowles teaches an insulating layer 22 which is not "an electrical insulator layer overlying and contacting the front face of the photovoltaic energy source", as recited in the, claims, and is not positioned in an analogous manner to the insulating layer 308 of Takada. As the explanation of the rejection acknowledges, the insulating layer 22 of Mowles serves to electrically isolate the entire device, not to overlie and contact the front face. The insulating layer of Mowles is not at all relevant to the motivation stated by the Examiner to satisfy the combination, that is, there is nothing in Takeda that would cause one skilled in the art to seek a thin, high temperature replacement for polyimide tape as an insulating layer. Furthermore, Takada teaches the use of the insulating layer 308, but as clearly shown in at least Figure 2A and in the text of Mowles, Mowles teaches that the conductor 26 is deposited directly on a transparent conductor 25, which overlays the photovoltaic layer 24. Clearly, Mowles teaches against "an electrical insulator layer overlying and contacting the front face of the photovoltaic energy source", as recited in claim 1. Accordingly, there is no basis for combining the teachings of these references.

Appellant has further argued that there is no expectation of success in using an insulating layer 22 of Mowles in an entirely different application than that of Takada. Further, the teaching of Mowles against "an electrical insulator layer overlying and contacting the front face of the photovoltaic energy source" mandates against success.

Finally, the combination does not yield Appellant's invention as claimed. Appellant notes with reference to Figure 3B and 3C of Takeda, a layer 304 lies between what the Examiner has identified as the photovoltaic source 303 and the insulating layer 308, the insulating layer 308 being in contact with layer 304. Thus, the combination, even if proper, would not yield Appellant's invention as set forth in claim 1 which requires the insulator layer to be contacting the front face of the photovoltaic energy source. Detailed arguments are set forth in Appellant's Appeal Brief, to which the Board is referred for detail.

CLAIM 12

The Examiner has utilized Takeda and Mowles as discussed above and further in combination with Kaplow et al. (U.S. 4,242,580). Kaplow teaches a highly concentrated solar radiation apparatus, such as the one disclosed and claimed by Appellant in claim 12. Except for the disclosure of the highly concentrated solar radiation apparatus, Kaplow adds nothing to the infirmity of the combination of Takeda and Mowles, except to highlight that neither Takeda nor Mowles as discussed above are directed to problems with solar concentrators, further suggesting hindsight picking and choosing of Appellant's claim elements from the prior art to formulate a rejection.

Appellant's further arguments for the patentability of claim 12 are otherwise similar to the summary provided above for claim 1 and need not be repeated. The detailed arguments are found in the reply brief.

CLAIM 18

The arguments for and against patentability by the Appellant and the Examiner of claim 18 are similar to claim 1 and will not be repeated. However, the Examiner makes what Appellant views as a disturbing statement in rejecting claim 18. The Examiner states, "As for teaching against the insulating layer underneath a busbar, Mowles does not specifically teach that the insulating layer cannot be used under a busbar or that any insulation layer cannot be used under

a busbar. Thus Mowles does not teach away from the combination." This statement, in effect, takes a position that the absence of a specific teaching of a combination in a reference does not preclude the combination. This stands logic on its head, since a reference, if it discloses one of the claimed elements, could be argued to support a combination proposed by the Examiner, whether or not the reference actually suggests the combination, as long as the reference does not specifically teach away from the combination. Using this line of reasoning, motivation is not a requirement for a proper §103 rejection, and the Examiner would have met the burden of a §103 rejection. An applicant could only overcome the burden if the reference actually teaches away from the combination proposed by the Examiner, meaning that no motivation is required for the Examiner's prima facie case. In such a world, the only way that the applicant could overcome any suggested combination of the Examiner is when a negative motivation is actually taught in one of the references. Yet this is exactly the position set forth by the Examiner in the portion of the rejection quoted above, making patent practitioners worst fears of the broadest possible interpretation of the KSR decision a reality in this application. Appellant's attorney has always practiced under the belief that a prima facie case requires motivation, (actual teaching or suggestion) and a requirement for a proper §103 rejection, and that a reference has to be considered for what it actually teaches. The Examiner's position as set forth above surely cannot be Patent Office policy. Further, Appellant does not believe that the KSR opinion supports this position.

SUMMARY

The Examiner has not met the burden set down by the Supreme Court in Graham v. Deere. He has not properly analyzed the scope and content of the prior art, nor has he ascertained the differences between the prior art and the claims at issue. In the process, he has slipped into hindsight reconstruction of the claims of Appellant's application. Even if the combination of references is proper, the combination does not yield Appellant's invention.

Respectfully submitted,

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